

CLAIMS

1. A method for producing a monoclonal antibody, wherein the method comprises the following steps of:

(a) introducing into a cell,

said cell (i) comprising a rearranged endogenous immunoglobulin heavy chain gene and a rearranged endogenous immunoglobulin light chain gene, and (ii) secreting a monoclonal antibody comprising an immunoglobulin heavy chain polypeptide derived from said rearranged endogenous immunoglobulin heavy chain gene and an immunoglobulin light chain polypeptide derived from said rearranged endogenous immunoglobulin light chain gene,

an exogenous DNA comprising a gene encoding a protein identical to said immunoglobulin heavy chain polypeptide comprised in said cell,

(b) obtaining transformants transformed by the exogenous DNA;

(c) culturing the transformants in a cell culture medium;

(d) obtaining the monoclonal antibody secreted into the cell culture medium.

2. The method of production according to claim 1, wherein the gene encoding a protein identical to said immunoglobulin heavy chain polypeptide is a gene comprising a nucleotide sequence identical to the endogenous immunoglobulin heavy chain gene.

3. The method of production according to claim 1 or 2, wherein the cells comprise immortalized B cells derived from B cells of a mammal.

4. The method of production according to claim 3, wherein the immortalized B cells comprise fused cells obtained by fusing B cells with myeloma cells or recombinant myeloma cells.

5. The method of production according to claim 3 or 4, wherein the mammal is a non-human mammal.

6. The method of production according to claim 3 or 4, wherein the mammal is a human.

7. The method of production according to claim 3 or 4, wherein the mammal is a transgenic non-human mammal that produces a human antibody.

8. The method of production according to any one of claims 1 to 4, 6, and 7, wherein the endogenous immunoglobulin heavy chain gene is a human immunoglobulin heavy chain gene.

9. The method of production according to any one of claims 1 to 4, 6, and 7, wherein the endogenous immunoglobulin light chain gene is a human immunoglobulin light chain gene.

10. The method of production according to any one of claims 1 to 5, wherein the monoclonal antibody is a monoclonal antibody of a non-human mammal.

11. The method of production according to any one of claims 1 to 4, 6, and 7, wherein the

monoclonal antibody is a human monoclonal antibody.

12. The method of production according to any one of claims 1 to 11, wherein the exogenous DNA further comprises a gene-amplification gene.

13. The method of production according to claim 12, wherein the gene-amplification gene is dihydrofolate reductase (DHFR) gene.

14. A transformant produced by the method of any one of claims 1 to 13.